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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/500,391	02/08/2000	Wei-Ping Sun	CISCO-1858	2543

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EXAMINER

VOLPER, THOMAS E

ART UNIT	PAPER NUMBER
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2697

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/500,391

Applicant(s)

SUN ET AL.

Examiner

Thomas Volper

Art Unit

2697

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 37-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 37-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-7. 6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to because they are hand drawn with uneven lines. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 3 is objected to because of the following informalities: The claim recites the limitation "the final packet" in line 3. This should be changed to --the last data packet-- to be consistent with "a last data packet" in line 2. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 5, 13, 16, 37, 38 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klimenko (US Pat. 5,974,547).

Regarding claims 1, 16, 37 and 41, Klimenko discloses a technique for reliable booting of

Art Unit: 2697

an operating system to a client computer. The client computer contains a LAN adapter, also referred to as a network interface card-NIC (col. 7, lines 11-16). This NIC represents the router card of the present invention. The server (50) represents the system controller of the present invention and the network (30) represents the bus of the present invention (see Figure 2A). The client computer will issue a trivial file transfer protocol (TFTP) request to server (50) by way of the NIC. The TFTP server locates and opens this file based on the information provided in the TFTP request, then downloads this boot file, LANHD.IMG, to the client computer. The PC acknowledges successful download by sending an acknowledgement packet to the server (col. 11, lines 12-26). Klimenko fails to expressly disclose that the information used to locate the file is a port address and file type. However, Klimenko does disclose that client hard disk images are stored in client image directories unique to a corresponding PC. Each directory has a 1:1 correspondence to its corresponding PC (col. 8, lines 33-50). Klimenko also discloses that each NIC has a media access control (MAC) address that identifies that particular NIC (col. 7, lines 11-16). Also, at a previous step the NIC was given the boot file name, LANHD.IMG (col. 10, lines 50-66). At the time the invention was made, it would have been obvious to use the MAC address and file type to identify the file to be sent to the NIC. One of ordinary skill in the art would have been motivated to use the MAC address to first locate the corresponding directory, and the file type, image, to determine which file in the directory to send.

Regarding claims 5 and 38, Klimenko discloses downloading a LANHD.IMG boot file to a NIC in a client computer. This downloaded file specifies a file LANHD.INI file for the NIC to download next. The LANHD.INI file contains entries including a MAC address, an IP address

Art Unit: 2697

of a server and a complete path to a client image file on that server (col. 11, lines 31-39). These entries all represent parameters.

Regarding claim 13, Klimenko discloses that the process of downloading a boot file occurs after a user has powered-up client PC (10), which includes the NIC (col. 9, lines 56-66). It is inherent that if the client PC is powered-up it was at some point previously powered-off.

5. Claims 2-4, 6-12, 14, 15, 17, 39, 40 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klimenko (US Pat. 5,974,547) as applied to claims 1, 5, 13, 16, 37, 38 and 41 above, and further in view of K. R. Sollings, "The TFTP Protocol (Revision 2)" (hereinafter RFC 783).

Regarding claims 2 and 17, Klimenko discloses using trivial file transfer protocol (TFTP) to make the request for the image file. Klimenko also discloses that a TFTP acknowledgement packet is sent to the server when the client successfully downloads the file (col. 11, lines 17-22). Klimenko fails to expressly disclose forming a data packet from the file, wherein the data packet is a fixed size and includes a system frame header and a data packet protocol header. RFC 783 discloses that TFTP that sends packets in fixed length blocks (page 3). Figure 3-1: Order of Headers (page 5) shows a header structure including Local Medium and Internet headers, which collectively represent the system frame header of the present invention, and Datagram and TFTP headers, which represent the data packet protocol header of the present invention. TFTP also specifies that each data packet must be acknowledged by an acknowledgement packet before the next packet can be sent (page 3). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the fixed size TFTP packet format with the

Art Unit: 2697

appropriate headers in sending data packets formed from the requested file. One of ordinary skill in the art would have been motivated to do this because this protocol is small and easy to implement for the purpose of transferring files.

Regarding claim 3, Klimenko fails to disclose sending a last packet less than the fixed size. RFC 783 discloses that a data packet of less than 512 bytes, which is the fixed size, signals the termination of a transfer (page 3). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use this last packet smaller than 512 bytes at the end of the file transfer in the invention of Klimenko. One of ordinary skill in the art would have been motivated to do this to signal to the NIC that the transfer was complete so that the NIC could start using the downloaded file.

Regarding claim 4, Klimenko fails to disclose retransmitting a data packet to the client if the server receives a duplicate acknowledgment packet for the previous packet. RFC 783 discloses that a lost data packet causes a timeout for the intended recipient, in which case the intended recipient retransmits its last packet (page 3). Thus, if the intended recipient is the client and a timeout condition occurs, the client would then send an acknowledgement packet for the previously received data packet, i.e. a duplicate acknowledgment. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to retransmit a data packet formed from the image file of Klimenko in response to receiving a duplicate acknowledgement packet. One of ordinary skill in the art would have been motivated to do this in order to signal the server that a data packet has not been received and needs to be retransmitted.

Regarding claims 6 and 40, Klimenko does not expressly disclose a system frame header and a data packet protocol header consisting essentially of an operation code, a block number, a file type and a checksum. RFC 783 discloses a header structure in Figure 3-1: Order of Headers (page 5) of Local Medium and Internet headers, which represent the system frame header of the present invention, and the Datagram and TFTP headers represent the data packet protocol header of the present invention. The format for a data packet includes an opcode and a block # (see Figure 5-2, page 10). Additionally, TFTP specifies that it may be implemented on top of the Internet User Datagram Protocol (UDP or Datagram) (page 2). The User Datagram Header includes a checksum (page 15). Thus, this checksum would be included in the data packet protocol header. RFC 783 also specifies that a request (RRQ) packet includes a filename in the header. This filename represents the file type of the present invention because the file type is provided in the filename extension. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a system frame header and the data packet protocol header format of a TFTP data packet in sending data packets in the invention of Klimenko. It also would have been obvious to include the filename, normally only included in the TFTP RRQ packet, in the header of the data packet. One of ordinary skill in the art would have been motivated to use the system frame header and data packet protocol header to be compliant with the TFTP standard. One of ordinary skill in the art would have been motivated to include the filename in the TFTP data packet header so that the NIC on the client computer would be able to determine which packets belong to which file if more than one file is being downloaded.

Art Unit: 2697

Regarding claim 7, Klimenko fails to disclose that the acknowledgement packet consists essentially of a system frame header, and acknowledgement code, and a block number. RFC 783 discloses a format for an ACK packet that contains an opcode, which represents the acknowledgement code, and block # (see Figure 5-3, page 10). The system frame header is shown in Figure 3-1 (page 5). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use this format of an acknowledgement packet in acknowledging the received file from the server in the invention of Klimenko. One of ordinary skill in the art would have been motivated to do this so that the server would know which packets have been sent successfully and which ones need to be retransmitted.

Regarding claims 8-10, Klimenko discloses a media access control (MAC) address of the NIC that is 12 characters long in hexadecimal format, or 6 bytes long if represented in binary (col. 10, line 5). The server also has a MAC address (col. 11, lines 35-37). Klimenko fails to disclose a system frame header that specifies the addresses of the router card and system controller. RFC 783 discloses a system frame header composed of Local Medium and Internet headers (Figure 3-1, page 5). At the time the invention was made, it would have been obvious to send the MAC addresses of the NIC and server in the Local Medium part of a system frame header in the invention of Klimenko. One of ordinary skill in the art would have been motivated to do this so that the packet would be routed to the correction destination NIC and that the receiving NIC was sure that this packet was coming from the server.

Regarding claims 11, 12, 39 and 42, Klimenko discloses a media access control (MAC) address of the NIC that is 12 characters long in hexadecimal format, or 6 bytes long if represented in binary (col. 10, line 5). The server also has a MAC address (col. 11, lines 35-37).

Art Unit: 2697

Klimenko fails to disclose a system frame header that specifies the addresses of the router card and system controller, a request code, and a file type in the request packet. RFC 783 discloses a system frame header composed of Local Medium and Internet headers (Figure 3-1, page 5). RFC 783 also discloses a request packet format that includes an opcode, which is the request code of the present invention, and a filename, which represents the file type of the present invention (see Figure 5-1, page 8). At the time the invention was made, it would have been obvious to send the MAC addresses of the NIC and server in the Local Medium part of a system frame header in the invention of Klimenko. It also would have been obvious to include a request code and the file type in the request packet. One of ordinary skill in the art would have been motivated to do this so that the packet would be routed to the correction destination NIC and that the receiving NIC was sure that this packet was coming from the server. One would have been motivated to include the request code and file type to be compliant with the TFTP format of a request packet.

Regarding claims 14 and 15, Klimenko discloses that the process of downloading a boot file occurs after a user has powered-up client PC (10), which includes the NIC (col. 9, lines 56-66). It is inherent that if the client PC is powered-up it was at some point previously powered-off.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Bahlman et al. (US Pat. 6,170,008) On-the-Fly Trivial File Transfer Protocol

Art Unit: 2697

- Bailey et al. (US Pat. 6,185,623) Method and System for Trivial File Transfer Protocol (TFTP) Subnet Broadcast

- Hong et al. (US Pat. 563,821) Channel Bonding in a Remote Communications Server System

7. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is 703-305-8405 and fax number is 703-746-9467. The examiner can normally be reached between 8:30am and 6:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at 703-308-6602. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

tev

July 16, 2003

A handwritten signature in black ink, followed by the date "7/19/02". The signature is stylized and appears to be "T. Volper".